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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,278	12/28/2001	Masashige Kawarai	122.1480	2862

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STAAS & HALSEY LLP
700 11TH STREET, NW
SUITE 500
WASHINGTON, DC 20001

EXAMINER
CONNELLY CUSHWA, MICHELLE R

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 05/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/028,278	KAWARAI, MASASHIGE	
	Examiner	Art Unit	
	Michelle R. Connelly-Cushwa	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4,6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

The prior art documents submitted by applicant in the Information Disclosure Statements filed on December 28, 2001 and April 17, 2002 have all been considered and made of record (note the attached copies of form PTO-1449).

Drawings

Nine (9) sheets of formal drawings were filed on December 28, 2001.

Specification

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takehana et al. (JP 10-210008) in view of Iwano (JP 07-030520).

Regarding claims 1 and 4; Takehana et al. discloses all of the limitations of claims 1 and 4, except for the apparatus comprising a plurality of attenuators, a spectral analyzer unit (wavelength monitoring device), or a controller that sets the amount of attenuation. Figure 1 of Takehana et al. discloses a wavelength division multiplexing transmitting apparatus comprising a plurality of transponders (2-1 through 2-n) that

respectively convert a plurality of optical signals of the same wavelength into a plurality of optical signals of different wavelengths (λ1-λn); an optical combiner (8) that combines optical output of the plurality of transponders; an optical amplifier (9) that optically amplifies the optical output of the optical combiner (8); and an optical shutoff means (4, 7) for shutting off an input of an optical signal of a wavelength not used among the plurality of optical signals.

Iwano teaches the use of a plurality of attenuators (33), a spectral analyzer unit (40), and controllers (41) that set an amount of attenuation in a wavelength division multiplexing apparatus comprising a plurality of optical transmitters (31) each having a different wavelength, a multiplexer (34) and an amplifier (35). Iwano teaches that the invention allows the output level of each signal light to be determined. One of ordinary skill in the art would have found it obvious to incorporate a plurality of attenuators, a spectral analyzer unit, and controllers in the invention of Takehana et al. in the manner suggested by Iwano, i.e. by connecting a plurality of variable attenuators between the transponders (2-1 through 2-n) and the optical combiner (8), connecting a spectral analyzer unit after the amplifier (9), and connecting the controllers between the spectral analyzer unit and the attenuators, to control the power level of the signals transmitted, as suggested by Iwano to control the output level of each signal light.

Regarding claim 2; the optical shutoff means (4,7) disclosed by Takehana et al. comprises an optical switch (7), which is inherently provided on the input side of attenuators that are placed after the transponders in the proposed combination of Takehana et al. and Iwano.

Regarding claim 3; the transponders include a plurality of optical-to-electrical converters that convert a plurality of optical signals of the same wavelength to a plurality of electrical signals and a plurality of electrical-to-optical converters that convert the plurality of electrical signals into a plurality of optical signals of different wavelengths in the invention of Takehana et al. Also, the optical shutoff means (4,7) includes a shutdown control circuit (4) that selectively shuts down the plurality of electrical-to-optical converters.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Ishikawa et al. (JP 06-188517) teaches that conventional techniques that realize a wavelength conversion function changes a lightwave signal into an electrical signal, wherein the electric signal drives individual semiconductor lasers having a desired wavelength (see paragraph 5 of the detailed description).

Okiyama (US 6,031,659) discloses an optical device in Figure 4 comprising a plurality of variable attenuators (26) that receive a plurality of optical signals of different wavelengths ($\lambda 1$, $\lambda 2$); an optical combiner (16) that combines the plurality of optical signals output from the variable attenuators (26); spectrum analyzer units (30) that measure the spectrum of an optical signal output from the attenuators; and control units (32) the control the amount of attenuation for each optical attenuator (26).

Dungan et al. (US 5,923,450) discloses an optical system in Figures 2 and 3 comprising a plurality of variable attenuators (64) that receive optical signals of different

wavelengths; a multiplexer (18) that combines the optical signals from the attenuators; and a plurality of optical detectors (68) and controllers that provide feedback control to adjust the attenuation of each attenuator (64).

Terahara (US 6,271,945 B1) discloses an optical device in Figure 9 including a plurality of attenuators (58); a multiplexer (18) that combines the output signals from the attenuators (58); a spectrum monitor (34) that monitors the optical signals output from the multiplexer; and a control circuit (36) that controls the amount of attenuation provided by each attenuator (58).

Narahashi et al. (EP 0 743 768 A1) discloses an optical device in figure 5 comprising a plurality of attenuators (21); a multiplexer (16); a spectrum analyzer unit (23) and a control means (24) for controlling the amount of attenuation provided by the attenuators (21).

Any inquiry concerning the merits of this communication should be directed to Examiner Michelle R. Connelly-Cushwa at telephone number (703) 305-5327. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (703) 308-0956 or to the technical support staff supervisor at telephone number (703) 308-3072.

Akm E. Ullah
Primary Examiner

Michelle R. Connelly-Cushwa
MRCC
May 29, 2002